

Action Levels for Contaminated Sites

NAC 445A.226 Definitions. ([NRS 445A.425](#)) As used in [NAC 445A.226](#) to [445A.22755](#), inclusive, and sections 2 to 5, inclusive, of this regulation, unless the context otherwise requires, the words and terms defined in [NAC 445A.22605](#) to [445A.2268](#), inclusive, and section 2 of this regulation have the meanings ascribed to them in those sections.

NAC 445A.22605 “Action level” defined. ([NRS 445A.425](#)) “Action level” means the level of concentration of a hazardous substance, hazardous waste or a regulated substance in soil, groundwater or surface water that is established pursuant to [NAC 445A.2272](#), [445A.22735](#) and [445A.2275](#) and for which corrective action may be required by the Director.

NAC 445A.2261 “Administrator” defined. ([NRS 445A.425](#)) “Administrator” means the Administrator of the Division.

NAC 445A.22615 “Aquifer” defined. ([NRS 445A.425](#)) “Aquifer” has the meaning ascribed to it in [NAC 445A.812](#).

NAC 445A.2262 “Corrective action” defined. ([NRS 445A.425](#)) “Corrective action” means a permanent remedy that an owner or operator is required to take after a release of a hazardous substance, hazardous waste or a regulated substance to prevent the substance or waste from posing a threat or potential threat to public health or the environment.

NAC 445A.22625 “Director” defined. ([NRS 445A.425](#)) “Director” means the Director of the State Department of Conservation and Natural Resources.

NAC 445A.2263 “Division” defined. ([NRS 445A.425](#)) “Division” means the Division of Environmental Protection of the State Department of Conservation and Natural Resources.

Sec. 2. “Environmental covenant” has the meaning ascribed to it in NRS 445D.060.

NAC 445A.22635 “Groundwater” defined. ([NRS 445A.425](#)) “Groundwater” has the meaning ascribed to it in [NAC 444.579](#).

NAC 445A.2264 “Hazardous substance” defined. ([NRS 445A.425](#)) “Hazardous substance” has the meaning ascribed to it in [NRS 459.429](#).

NAC 445A.22645 “Hazardous waste” defined. ([NRS 445A.425](#)) “Hazardous waste” has the meaning ascribed to it in [NAC 444.843](#).

NAC 445A.2265 “Operator” defined. ([NRS 445A.425](#)) “Operator” means a person in control of or having responsibility for the daily operation of a site, business or other operation where a hazardous substance, hazardous waste or a regulated substance is disposed of, used or stored.

NAC 445A.22655 “Owner” defined. ([NRS 445A.425](#)) “Owner” means a person who owns property where a hazardous substance, hazardous waste or a regulated substance is disposed of, used or stored.

NAC 445A.2266 “Person” defined. ([NRS 445A.425](#)) “Person” has the meaning ascribed to it in [NRS 445A.390](#).

NAC 445A.22665 “Regulated substance” defined. ([NRS 445A.425](#)) “Regulated substance” has the meaning ascribed to it in [NRS 459.448](#).

NAC 445A.2267 “Release” defined. ([NRS 445A.425](#)) “Release” has the meaning ascribed to it in [NAC 445A.3456](#).

NAC 445A.22675 “Remediation standard” defined. ([NRS 445A.425](#)) “Remediation standard” means the level of concentration of a hazardous substance, hazardous material or a regulated substance in soil, groundwater or surface water which corrective action is designed to achieve.

NAC 445A.2268 “Surface water” defined. ([NRS 439.200](#), [445A.425](#)) “Surface water” means all water open to the atmosphere and subject to surface runoff.

NAC 445A.22685 Applicability. ([NRS 445A.425](#)) The provisions of [NAC 445A.226](#) to [445A.22755](#), inclusive, and sections 2 to 5, inclusive, of this regulation apply to any site, business or other operation where corrective action is required, unless the corrective action is required at:

1. A facility for the treatment, storage or disposal of hazardous waste that is issued a permit pursuant to [NRS 459.400](#) to [459.600](#), inclusive, and the corrective action is required for any violation of [NAC 444.8632](#).

2. A disposal site, as defined in [NRS 444.460](#), and the corrective action is required pursuant to [NAC 444.7481](#) to [444.7499](#), inclusive.

NAC 445A.2269 Assessment of conditions at site of facility after notification of release of certain substances. ([NRS 445A.425](#))

1. Except as otherwise provided in this section, if the owner or operator of a facility, or his designated agent, is required to give notice of a release pursuant to [NAC 445A.345](#) to [445A.348](#), inclusive, the Division shall require the owner or operator to conduct an

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assessment of the conditions at the site of the facility, including an assessment of the condition of the soil or water, or both, to determine the extent and magnitude of the contamination.

2. An assessment conducted pursuant to subsection 1 must:

(a) Characterize the relevant pathways specifically related to the site that affect public health and the environment, including, without limitation, any information concerning sources of release, pathways and rates of migration of any released substances and any possible receptors of those substances;

(b) Rely upon methods of field sampling and analytical methods used in laboratories, if any, that are acceptable to the Division; and

(c) Be approved by the Division.

3. The Division shall not require an owner or operator to conduct an assessment pursuant to subsection 1 if documentation is submitted to and approved by the Division or if any follow-up reporting is sufficient to demonstrate one or more of the following:

(a) The level of contamination of the soil no longer exceeds the action level established for that soil pursuant to NAC 445A.2272 because of any actions taken by the owner or operator of the facility pursuant to NAC 445A.22695;

(b) The release does not meet the reportable quantities set forth in NAC 445A.345 to 445A.348, inclusive, as originally reported;

(c) The release:

(1) Has not affected any environmental media that are subject to any corrective action pursuant to NAC 445A.226 to 445A.22755, inclusive, and sections 2 to 5, inclusive, of this regulation; and

(2) Has been sufficiently controlled to prevent any future migration to the environmental media; or

(d) The notification was required because of a confirmed release from an underground storage tank and the conditions indicating a confirmed release have not resulted in any contamination of the soil in excess of 3 cubic yards by a regulated substance and that all appropriate actions have been taken to prevent any continued release.

4. The Division may, at any time that is reasonably required to determine if an assessment is required pursuant to subsection 1:

(a) Question the owner or operator concerning any matter relating to the release; or

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(b) Require the owner or operator to provide, in writing, any records or other information relating to the release or any damage caused by the release.

Sec. 3. The Division may require an owner or operator of a facility to submit and carry out a plan and schedule for an additional characterization of a site to collect any information that is not submitted as part of an assessment of the conditions of a site pursuant to NAC 445A.2269 if the information is required to:

1. Evaluate the efficacy of any proposed corrective action;
2. Establish any appropriate action level for soil or groundwater; or
3. Support the issuance of an exemption, waiver or determination that corrective action is not required pursuant to NAC 445A.227 or 445A.22725.

NAC 445A.22695 Immediate action required under certain circumstances. ([NRS 445A.425](#))

1. An owner or operator shall immediately take any action necessary to mitigate and abate imminent and substantial hazards to public health or safety created by the release of a hazardous substance, hazardous waste or a regulated substance, including, without limitation:

(a) The removal of the hazardous substance, hazardous waste or regulated substance from any leaking container in an amount that is required to prevent any additional release of the hazardous substance, hazardous waste or regulated substance into the environment;

(b) Conducting a visual inspection of any aboveground release or exposed underground release of the hazardous substance, hazardous waste or regulated substance and the prevention of any additional migration of the hazardous substance, hazardous waste or regulated substance into any surrounding soil, groundwater or surface water;

(c) The reduction or elimination of any hazard that is caused or may be caused by any contaminated soil that is excavated or exposed during the confirmation of the release or investigation of the site; and

(d) Initiation of free product removal as soon as practicable and in consultation with the Division.

2. The Director may waive any provision of NAC 445A.226 to 445A.22755, inclusive, and sections 2 to 5, inclusive, of this regulation, other than a provision of NAC

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445A.2272, 445A.22735 or 445A.2275, and require an owner or operator to take immediate action after a release of a hazardous substance, hazardous waste or a regulated substance occurs or upon a discovery of any contaminated media specified by the Director if the release or contamination:

- (a) Has an actual or imminent effect on groundwater or surface water; or
- (b) Is hazardous to public health and safety.

NAC 445A.227 Contamination of soil: Order by Director for corrective action; factors to be considered in determining whether corrective action required. ([NRS 445A.425](#))

1. Except as otherwise provided in subsection 2, the Director *shall* require an owner or operator to take corrective action if the release of a hazardous substance, hazardous waste or a regulated substance contaminates soil and the level of contamination exceeds the action level established for the soil pursuant to [NAC 445A.2272](#).

2. In determining whether corrective action is required or may be terminated after corrective action has been taken, the Director may consider an evaluation of the conditions at the site which indicate that any contamination remaining at the site does not cause any current or potential threat to human health or the environment. Such an evaluation must use accepted methodologies and calculations which consider, without limitation, the following factors:

- (a) The depth of any groundwater;
- (b) The distance to irrigation wells or wells for drinking water;
- (c) The type of soil that is contaminated;
- (d) The annual precipitation;
- (e) The type of waste or substance that was released;
- (f) The extent of the contamination;
- (g) The present and potential use for the land;
- (h) The preferred routes of migration;
- (i) The location of structures or impediments;

- (j) The potential for a hazard related to fire, vapor or an explosion; and
- (k) Any other information specifically related to the site which the Director determines is appropriate.

NAC 445A.22705 Contamination of soil: Evaluation of site by owner or operator; review of evaluation by Division. ([NRS 445A.425](#))

1. Except as otherwise provided in 445A.22695, if an owner or operator is required to take corrective action pursuant to [NAC 445A.227](#), the owner or operator may conduct an evaluation of the site, based on the risk it poses to public health and the environment, to determine the necessary remediation standards or to establish that corrective action is not necessary. Such an evaluation must be conducted using Method E1739-95, adopted by the American Society for Testing and Materials, as it exists on October 3, 1996, or an equivalent method approved by the Division.

2. The Division shall determine whether an evaluation complies with the requirements of Method E1739-95, or an equivalent method of testing approved by the Division. The Division may reject, require revisions be made to or withdraw its concurrence with the evaluation at any time after the completion of the evaluation for the following reasons:

(a) The evaluation does not comply with the applicable requirements for conducting the evaluation;

(b) Conditions at the site have changed; or

(c) New information or previously unidentified information which would alter the results of the evaluation becomes available and demonstrates that the release may have a detrimental impact on public health or the environment.

3. If the Division rejects, requires revisions be made to or withdraws its concurrence with an evaluation, it shall provide written notice of its determination and the reasons for its determination to the owner or operator. The owner or operator shall:

(a) Submit a revised evaluation to the Division; or

(b) Carry out the corrective action required by the Director.

4. Unless an evaluation is rejected by the Division or returned to the owner or operator for revision, the Director shall consider the results of the evaluation, the level of concentration of the hazardous substance, hazardous waste or regulated substance in the soil, and the points of compliance to be elements of the plan for corrective action.

5. Method E1739-95, adopted by the American Society for Testing and Materials, as it exists on October 3, 1996, is hereby adopted by reference. A copy of the method may be obtained from ASTM International, 100 Barr Harbor Drive, West Conshohocken, Pennsylvania 19428-2959, at a cost of \$31.

NAC 445A.2271 Contamination of soil: Plan and schedule for completing corrective action. ([NRS 445A.425](#)) An owner or operator who is required to take corrective action pursuant to [NAC 445A.227](#) shall submit to the Division a plan and schedule for completing the corrective action. Except as otherwise provided in 445A.22695, the owner or operator shall not take any corrective action until the plan and schedule are approved by the Division.

NAC 445A.22715 Contamination of soil: Waiver of requirements. ([NRS 445A.425](#)) The Director may waive the provisions of [NAC 445A.227](#), [445A.22705](#) and [445A.2271](#) and require an owner or operator to take corrective action immediately after the release of a hazardous substance, hazardous waste or a regulated substance that contaminates soil if the release:

1. Has an actual or imminent impact on groundwater; or
2. Is hazardous to public health and safety.

NAC 445A.2272 Contamination of soil: Establishment of action levels. ([NRS 445A.425](#))

1. For the purposes of 445A.22695 to 445A.2271, inclusive, the action level for soil must be established at the following levels:

- (a) The background concentration or volume of a hazardous substance, hazardous waste or a regulated substance set forth:
 - (1) in the permit issued to the owner or operator by the Division; or
 - (2) A study approved by the Division.

(b) The presence of a hazardous substance, hazardous waste or a regulated substance in the soil at an appropriate level of concentration that is based on the protection of the waters of the State, public health and safety for all identified routes of exposure and the environment. The appropriate level of concentration must be determined by the Division using the Integrated Risk Information System, adopted by the Environmental Protection Agency, as it existed on October 3, 1996, or any other equivalent method or peer-reviewed source of information chosen by the Division.

2. Except as otherwise provided in this subsection, if more than one action level for soil may be established using the criteria set forth in paragraph (b) of subsection 1, the most restrictive action level must be used. In no case may the action level be more

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restrictive than the background concentration of the hazardous substance, hazardous waste or regulated substance.

3. The State Environmental Commission hereby adopts by reference the Integrated Risk Information System, adopted by the Environmental Protection Agency, as it existed on October 3, 1996. A copy of the system is available on-line through the Internet and may be obtained from an Integrated Risk Information System Representative at (301) 496-6531, free of charge.

NAC 445A.22725 Contamination of groundwater: Order by Director for corrective action; request for exemption; exception. ([NRS 445A.425](#))

1. Except as otherwise provided in this section, the Director may require an owner or operator to take corrective action if the release of a hazardous substance, hazardous waste or a regulated substance contaminates groundwater and the level of contamination exceeds the action level established for the groundwater pursuant to [NAC 445A.22735](#).

2. An owner or operator may, before initiating corrective action or after the termination of remediation pursuant to NAC 445A.22745, submit a written request to the Director for an exemption from the provisions of subsection 1. The request must be accompanied by such supporting information as the Director may require. The Director may grant the request if:

(a) The following conditions are satisfied:

(1) Each source of the contamination of the groundwater is identified and controlled or no source of the contamination remains based upon the age and nature of the release;

(2) The magnitude and extent of the contamination of the groundwater is known; and

(3) Data are available from at least 3 years of quarterly monitoring or another period specified by the Division based upon the magnitude of the contamination of the groundwater and the data do not show a trend of increasing concentrations of the contamination in the body of the plume of the contamination;

(b) A demonstration is made which indicates that natural attenuation is sufficient to reduce any concentration of the contamination below action levels or to prevent any migration of the contaminant to a receptor or another point of demonstration established by the Division at concentrations that are greater than action levels, if the demonstration relies upon analytical or numerical models of diffusion and dispersion or any other calculations of physical or chemical processes of retardation or degradation that are approved by the Division; and

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(c) The groundwater contaminated by the release is not a source of drinking water and is not likely to be a source of drinking water in the future because:

(1) It is economically or technologically impractical to recover the water for drinking because of the depth or location of the water or render the water fit for human consumption; or

(2) A legal restriction or institutional control is in effect concerning the use of the groundwater based upon the depth of the groundwater, the presence of a municipal system, the use of an environmental covenant or other controls accepted by the Division.

3. In addition to any calculations of physical or chemical processes required pursuant to paragraph (b) of subsection 2, a demonstration made pursuant to that paragraph may also rely upon:

(a) Any known mechanism of biological degradation and any evidence obtained for the site relating to metabolic activity and the presence of the appropriate redox potential which supports biological degradation of the contamination;

(b) Any indication of degradation based upon the presence of any daughter products; or

(c) Any other applicable factors specified by the Division which are appropriate for making a decision based upon risk.

4. The Director shall not require an owner or operator to take corrective action pursuant to subsection 1 to achieve the remediation standard required by the Division if the owner or operator files with the Division a study which is acceptable to the Division and which demonstrates that, based on a review of available technology and the prohibitive cost of the corrective action, it is not feasible to achieve the required remediation standard.

Sec. 4. In determining whether to accept an action level for soil pursuant to NAC 445A.2272 that is based on a scenario for exposure other than a standard residential exposure specified by the Director, or to approve an exemption from corrective action for soil pursuant to NAC 445A.227 or groundwater pursuant to NAC 445A.22725, the Director may consider any activity or limitation on use established by the owner or operator of the facility through an environmental covenant accepted by the Division.

NAC 445A.2273 Contamination of groundwater: Plan and schedule for completing corrective action. ([NRS 445A.425](#)) An owner or operator who is required to take corrective action pursuant to [NAC 445A.22725](#) shall submit to the Division a plan and schedule for completing the corrective action. The owner or operator shall not take any corrective action until the plan and schedule are approved by the Division.

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NAC 445A.22735 Contamination of groundwater: Establishment of action levels.
([NRS 445A.425](#))

1. For the purposes of [NAC 445A.22725](#), [445A.2273](#) and [445A.2274](#), the action level for groundwater must be established at the following levels:

(a) The presence of 1/2 inch or more of a petroleum substance that is free-floating on the surface of the water of an aquifer, using a measurement accuracy of .01 feet.

(b) The presence of a hazardous substance, hazardous waste or a regulated substance in groundwater at a level of concentration equal to the maximum contaminant level for that substance or waste established pursuant to the Safe Drinking Water Act, 42 U.S.C. §§ 300f et seq., and 40 C.F.R. Part 141, as those sections existed on October 3, 1996.

(c) A level of concentration equal to the background concentration of a hazardous substance, hazardous waste or a regulated substance, if that level of concentration is greater than the maximum contaminant level established pursuant to paragraph (b).

(d) If a maximum contaminant level has not been established for a hazardous substance, hazardous waste or a regulated substance, a level of concentration equal to:

(1) The background concentration of the waste or substance; or

(2) An appropriate level of concentration that is based on the protection of public health and safety and the environment. The appropriate level of concentration must be determined by the Division using the Integrated Risk Information System, adopted by reference in [NAC 445A.2272](#), or an equivalent method approved by the Division.

2. In establishing an action level pursuant to subsection 1, the Division may consider:

(a) The presence of more than one hazardous substance, hazardous waste or regulated substance in the groundwater;

(b) Any potential threat the contamination may pose to sensitive areas of the environment; and

(c) Any other threat or potential threat to groundwater that is specifically related to the site.

3. If more than one action level for groundwater may be established using the criteria set forth in subsection 1, the most restrictive action level must be used.

4. The Safe Drinking Water Act, 42 U.S.C. §§ 300f et seq., and 40 C.F.R. Part 141, as those sections existed on October 3, 1996, are hereby adopted by reference. A copy of

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those sections may be obtained by mail from the Superintendent of Documents, U.S. Government Printing Office, P.O. Box 979050, St. Louis, Missouri 63197-9000, or by toll-free telephone at (866) 512-1800, at a cost of \$30.

NAC 445A.2274 Contamination of groundwater: Remediation standard. ([NRS 445A.425](#)) Unless remediation of a release may be terminated pursuant to [NAC 445A.22745](#), the remediation standard for groundwater shall be deemed to be the action level of the groundwater.

NAC 445A.22745 Contamination of groundwater: Monitoring; conditions for terminating remediation of release. ([NRS 445A.425](#))

1. After any corrective action required by [NAC 445A.22725](#) involving the treatment of groundwater is begun, the owner or operator may terminate remediation of the release after submitting written documentation and receiving written concurrence from the Division if:

(a) An assessment of the contaminated groundwater is conducted and indicates that the level of contamination is consistently below the action level for that water established pursuant to [NAC 445A.22735](#);

(b) A test of asymptotic concentrations specified in paragraph (c) is not appropriate, as determined by the Division based on the nature of the treatment used or the conditions at the site which limit the effectiveness of any available treatment, and the owner or operator complies with the conditions for the termination of remediation set forth in an approved plan of corrective action or an approved amendment to such a plan; or

(c) After the groundwater is treated for not less than 1 year, the concentration of dissolved constituents in the water, measured monthly, fits a curve that is substantially linear and approaches zero slope at the final portion of the curve. The curve must be established using the following equation:

$$C = C_f + C_o e^{-kt}$$

Where: “C” means the concentration of the contaminant at “t” in micrograms per liter.

“C_f” means the final concentration of the contaminant in micrograms per liter which the curve approaches asymptotically.

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“Co” means the difference between the final concentration of the contaminant and the concentration of the contaminant at time zero in micrograms per liter.

“e” means the base of the natural log or 2.718.

“t” means the time measured in days.

“k” means the decay constant.

2. After any remediation is terminated pursuant to subsection 1, the owner or operator shall ensure that any contaminated groundwater is monitored for not less than 1 year to determine the level of contamination in the groundwater. The Division shall determine the frequency of any monitoring required pursuant to this subsection, except that the Division shall not require monitoring more frequently than once each month.

Sec. 5. Any soil or groundwater which is contaminated with any amount of a hazardous substance, hazardous waste or a regulated substance and which is removed through a corrective action or an assessment of conditions at a site pursuant to NAC 445A.2269 or section 3 of this regulation must be managed in a manner approved by the Division.

NAC 445A.2275 Contamination of surface water. ([NRS 445A.425](#))

1. The Director may require an owner or operator to take corrective action if the release of a hazardous substance, hazardous waste or a regulated substance contaminates surface water and the level of contamination exceeds the action level established for the water pursuant to subsection 2.

2. For the purposes of subsection 1, the action levels and remediation standards for surface water must conform to the standards for water quality set forth in [NAC 445A.120](#), [445A.121](#), [445A.122](#) and [445A.144](#).

3. An owner or operator who is required to take corrective action pursuant to this section shall submit to the Division a plan and schedule for completing the corrective

action. The owner or operator shall not take any corrective action until the plan and schedule are approved by the Division.

NAC 445A.22755 Public hearings regarding corrective action affecting more than one owner or operator. ([NRS 445A.425](#)) The Administrator may hold such hearings as he deems necessary to obtain public testimony regarding any corrective action required to be taken pursuant to [NAC 445A.226](#) to [445A.2275](#), inclusive, and sections 2 to 5, inclusive, of this regulation which affects more than one owner or operator or members of the general public.